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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Norio Matsumoto

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EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/811,023	Applicant(s) MATSUMOTO ET AL.	
	Examiner MATTHEW J. DANIELS	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 6-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Prosecution Reopened

1. Prosecution is reopened on Claims 1-5 considered unpatentable for the reasons set forth below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy (USPN 6352662) in view of King, Jr. (USPN 3893318), and Blackington, Jr. (USPN 6299810).

As to Claim 1, Murphy teach the basic claimed process for making a hollow fiber reinforced article including, providing a mandrel (50), wrapping said mandrel (50) with a bladder, wrapping said bladder with a plurality of fiber reinforced pre-preg plies (60,62) to form a wrapped assembly, placing said wrapped assembly in a mold (forming die) without substantial contact with the forming die (space between items 60 and 70, also see "against" at 5:48), heating and pressurizing said prepreg plies by introducing a pressurized gas through said mandrel, and curing said prepreg plies to thereby form said hollow fiber reinforced article (5:21-58).

Murphy is silent to (a) vacuum chamber containing the forming die, and (b) evacuating the forming chamber in an isolation state where the composite and the forming die do not contact each other.

However, these aspects of the process would have been obvious over King, Jr., who teaches a vacuum chamber containing a forming die (Fig. 2, left portion of figure, items 34, 38, 12, 30), evacuating the forming chamber in an isolation state where the composite and the forming die do not contact each other (chamber is under vacuum). In the combination of King, Jr. with Murphy, the vacuum chamber would be used to surround the forming die of Murphy.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of King, Jr. into that of Murphy for the following reasons:

(a) Blackington, Jr. and the knowledge generally available to one in the art (Blackington, Jr. is one example) would motivate one to make the combination. Blackington, Jr. teaches that initial vacuum pumping of the sample is performed in order to remove air pockets and bubbles from within the sample (10:21-25). Thus, one of ordinary skill in the art would recognize that the beneficial effect of vacuum pumping prior to shaping is to remove bubbles from the article, which the ordinary artisan would recognize as providing undesirable internal flaws which would decrease the strength of the article. Therefore, one would have been motivated to make the combination to avoid trapped air bubbles within the article of Murphy.

(b) The combination would merely apply a technique already known in the art (King, Jr.'s combination of vacuum pumping and automatic operation with shaping between two dies) to a known process (shaping between two dies) which would lead to the benefits of the King, Jr. process.

As to Claim 2, Murphy teaches providing a mandrel (50), wrapping said mandrel (50) with a bladder and wrapping said bladder with a plurality of fiber reinforced pre-preg plies

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(60,62) to form a wrapped assembly (5:21-58). **As to Claim 3**, Murphy teaches heating and pressurizing said pre-preg plies by introducing a pressurized gas through said mandrel to thereby cure and form said hollow fiber reinforced article (5:21-58). **As to Claims 4 and 5**, Murphy teaches removing said mandrel (50) after wrapping said plurality of fiber reinforced pre-preg plies (60,62) and connecting a source of pressurized gas (52) directly to said bladder (5:39-42 and Figure 3). It is submitted that said pressurized gas source (52), as shown in Figure 5, includes a mouth-piece in order to connect directly to said bladder.

Response to Arguments

2. Applicant's arguments filed 5 February 2008 have been fully considered but they are not persuasive or are moot in view of the new rejections above. The arguments are on the following grounds:

- a) The step of vacuum pumping where the body and forming die do not contact each other resolves problems in the prior art and is unobvious.
- b) The die of Blackington is a pressing die, which is not a forming die.
- c) All of the embodiments in Blackington and Murphy show contact between the composite body and forming die.
- d) The rejection is deficient because it fails to explain how the prior art would be combined.

3. These arguments are not persuasive for the following reasons:

- a) King, Jr. teaches that it is conventional to provide a process where both the dies and the part are vacuum pumped before placement of the part in the mold.

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b-c) These arguments are addressed by the new rejections above. The purpose of the application of vacuum in Blackington, Jr. is "to remove any air pockets or bubbles from within the sample" (10:21-23). The deleterious result of incorporating voids in a composite material would be obvious to the ordinary artisan. Therefore, Blackington provides knowledge generally available in the art and would motivate one to make the combination set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/

Primary Examiner, Art Unit 1791

4/18/08